IN THE CLAIMS:

1-52 (Cancelled)

53. (New) A method of processing at least first and second plethysmographic signals obtained from a patient, the first and second plethysmographic signals being obtained in a first domain, said method comprising the steps of:

transforming the first and second plethysmographic signals from the first domain to a second domain different from the first domain to obtain first and second plethysmographic signals in the second domain;

transforming the first and second plethysmographic signals in the second domain to a third domain different from the first and second domains to obtain first and second plethysmographic signals in the third domain; and

examining at least the first and second plethysmographic signals in the third domain to obtain information therefrom relating to a physiological condition of the patient.

54. (New) The method of claim 53 wherein the first domain comprises the time domain, the second domain comprises the frequency domain, and the third domain comprises the cepstral domain.

55. (New) The method of claim 53 wherein said step of transforming the first and second plethysmographic signals from the first domain to the second domain comprises:

performing a Fourier transformation on the first plethysmographic signal in the first domain; and

performing a Fourier transformation on the second plethysmographic signal in the first domain.

56. (New) The method of claim 55 wherein the Fourier transformations performed comprise fast Fourier transformations.

57. (New) The method of claim 53 wherein said step of transforming the first and

second plethysmographic signals from the second domain to the third domain comprises:

performing a Fourier transformation on the first plethysmographic signal in the second domain; and

performing a Fourier transformation on the second plethysmographic signal in the second domain.

58. (New) The method of claim 57 wherein the Fourier transformations performed comprise fast Fourier transformations.

59. (New) The method of claim 53 wherein said step of examining at least the first and second plethysmographic signals in the third domain comprises:

identifying a peak in the first plethysmographic signal in the third domain associated with a pulse rate of the patient; and

identifying a peak in the second plethysmographic signal in the third domain associated with a pulse rate of the patient.

60. (New) The method of claim 59 wherein the physiological condition of the patient comprises a pulse rate of the patient and said method further comprising the step of:

estimating the pulse rate of the patient based on locations of the identified peaks in the first and second plethysmographic signals in the third domain.

61. (New) The method of claim 59 further comprising:

determining a DC level of the first plethysmographic signal in the second domain;

determining a DC level of the second plethysmographic signal in the second domain;

obtaining an AC level of the first plethysmographic signal in the first domain from the identified peak in the first plethysmographic signal in the third domain;

obtaining an AC level of the second plethysmographic signal in the first domain from the identified peak in the second plethysmographic signal in the third domain; and

computing a value correlated with a blood analyte level of the patient from the DC levels of the first and second plethysmographic signals in the second domain and the AC levels of the first and second plethysmographic signals in the first domain.

62. (New) The method of claim 61 wherein in said step of computing, the blood analyte level is an SPO2 level.

63. (New) The method of claim 53 further comprising:

transmitting a red wavelength optical signal through a tissue site of the patient to obtain the first plethysmographic signal in the first domain; and

transmitting an infrared wavelength optical signal through the tissue site of the patient to obtain the second plethysmographic signal in the first domain.

64. (New) A method of determining a pulse rate of a patient from at least one plethysmographic signal obtained from the patient in a first domain, said method comprising the steps of:

obtaining a first domain based estimate of the pulse rate of the patient from the first domain plethysmographic signal;

transforming the first domain plethysmographic signal to a second domain plethysmographic signal, the second domain being different from the first domain;

obtaining a second domain based estimate of the pulse rate of the patient from the second domain plethysmographic signal;

transforming the second domain plethysmographic signal to a third domain plethysmographic signal, the third domain being different from the first and second domains;

obtaining a third domain based estimate of the pulse rate of the patient from the third domain plethysmographic signal; and

determining a best estimate of the pulse rate of the patient based on at least the first, second, and third domain based estimates of the pulse rate of the patient.

65. (New) The method of claim 64 wherein the first domain comprises the time domain, the second domain comprises the frequency domain, and the third domain comprises the cepstral domain.

66. (New) The method of claim 64 wherein said step of transforming the first domain

plethysmographic signal to a second domain plethysmographic signal comprises performing a Fourier transform operation on the first domain plethysmographic signal.

67. (New) The method of claim 64 wherein said step of transforming the second domain plethysmographic signal to a third domain plethysmographic signal comprises performing a Fourier transform operation on the second domain plethysmographic signal.

68. (New) A pulse oximeter comprising:

a first optical signal source operable to emit an optical signal characterized by a first wavelength;

a second optical signal source operable to emit an optical signal characterized by a second wavelength different than said first wavelength;

a drive system operable to cause operation of said first and second optical signal sources such that each of said first and second optical signal sources emit first and second optical signals, respectively, in accordance with a multiplexing method;

a detector operable to receive said first and second optical signals after said first and second optical signals are attenuated by a patient tissue site of a patient, said detector being further operable to provide an analog detector output signal representative of said attenuated first and second optical signals;

a digital sampler operable to sample the analog detector output signal at a desired sampling rate and output a digital signal having a series of sample values representative of said attenuated first and second optical signals; and

a digital processor enabled to demultiplex the series of sample values into first and second plethysmographic signals in a first domain, transform the first and second plethysmographic signals in the first domain into first and second plethysmographic signals in a second domain different than the first domain, transform the first and second plethysmographic signals in the second domain into first and second plethysmographic signals in a third domain different than the first and second domains, and examine at least the first and second plethysmographic signals in the third domain to obtain information therefrom relating to a physiological condition of the patient.

69. (New) The pulse oximeter of claim 68 wherein the first domain comprises the time domain, the second domain comprises the frequency domain, and the third domain comprises the cepstral domain.

70. (New) The pulse oximeter of claim 68 wherein said first wavelength is within the range of infrared light wavelengths and said second wavelength is within the range of red light wavelengths.

71. (New) The pulse oximeter of claim 68 wherein said digital processor is enabled to perform fast Fourier transforms on the first and second plethysmographic signals in the first domain to transform the first and second plethysmographic signals in the first domain into the first and second plethysmographic signals in the second domain.

72. (New) The pulse oximeter of claim 68 wherein said digital processor is enabled to perform fast Fourier transforms on the first and second plethysmographic signals in the second domain to transform the first and second plethysmographic signals in the second domain into the first and second plethysmographic signals in the third domain.

73. (New) The pulse oximeter of claim 68 wherein the physiological condition of the patient comprises a pulse rate of the patient.

74. (New) The pulse oximeter of claim 73 wherein said digital processor is further enabled to construct a second domain filter based at least on the pulse rate of the patient, filter the first and second plethysmographic signals in the second domain using the filter to obtain filtered first and second plethysmographic signals in the second domain, and transform the filtered first and second plethysmographic signals in the second domain into filtered first and second plethysmographic signals in the first domain.

75. (New) The pulse oximeter of claim 74 wherein said digital processor is further enabled to determine DC levels of the first and second plethysmographic signals in the first domain, determine AC levels of the first and second filtered plethysmographic signals in the first

domain, and compute a value correlated with a blood analyte level of the patient from the DC values of the first and second plethysmographic signals in the first domain and AC levels of the first and second filtered plethysmographic signals in the first domain.

76. (New) The pulse oximeter of claim 75 wherein the blood analyte level is an SPO2 level.